Claims:

1. An electronic device comprising:

a substrate:

a well defined in said substrate;

a tip emitter formed in said well;

an extractor disposed about said well to extract emissions from said tip emitter;

a wide lens spaced apart from said extractor for focusing said emissions through an opening defined in said wide lens, said opening having a diameter greater than a diameter of said well; and

an aperture disposed between said extractor and said wide lens.

2. The electronic device according to claim 1, wherein a width of said wide lens is in the range of ~2 - ~ 10μm and a width of said aperture is in the range of ~0.8 - ~2μm.

3. The electronic device of claim 2, wherein a distance between said wide lens and said extractor is in the range of ~1μm - ~10μm, and a distance between said wide lens and said aperture is at least 0.7μm.

4. The electronic device of claim 1, further comprising extractor level focusing means for focusing said emissions toward said aperture.

5. The electronic device according to claim 4, wherein said extractor level focusing means comprises said extractor being formed as a circular electrode about said well.

6. The electronic device of claim 5, wherein said extractor level focusing means further comprises a negatively biased electrode spaced apart from said circular electrode.

7. The electronic device of claim 1, further comprising means for stabilizing said emissions by limiting and/or controlling voltage variation of said tip emitter.

8. The electronic device of claim 7, wherein said means for stabilizing said emissions further limits voltage variation of said aperture.

9. The electronic device of claim 8, wherein said wherein said means for stabilizing said emissions further limits voltage variation of said wide lens.

10. The electronic device of claim 1, further comprising means for stabilizing said emissions by limiting voltage variation of said extractor.

11. The electronic device of claim 1, further comprising means for stabilizing said emissions by limiting voltage variation of said tip emitter to be less than or equal to ~±5V.

12. The electronic device of claim 1, further comprising means for stabilizing said emissions by limiting voltage variation of said tip emitter to be less than or equal to ~±2V.

13. The electronic device of claim 1, further comprising means for stabilizing said emissions by limiting voltage variation of said wide lens to be less than or equal to ~±5V.

14. The electronic device of claim 1, further comprising means for stabilizing said emissions by limiting voltage variation of said extractor to be less than or equal to ~±2V.

15. The electronic device of claim 1, wherein said well defined in said substrate has a depth to diameter aspect ratio in the approximate range of 0.75:1 – 1.25:1.

16. The electronic device of claim 15, wherein said well has a depth of ~0.5μm

17. The electronic device of claim 1, wherein said wide lens is spaced far enough away to focus said emissions onto a medium in a spot size less than ~35nm.

18. The electronic device of claim 1, further comprising a shield disposed on a side of said wide lens that is facing away from said aperture.

19. The electronic device of claim 1, formed as part of a memory device, the memory device including a plurality of said tip emitters and comprising:

a plurality of respective wide lenses for focusing electron beams from the plurality of tip emitters to created focused beams; and

a memory medium at the focal point of the focused beams, the memory medium having a storage area being in one of a plurality of states to represent information stored in the storage area, the states being responsive to the focused beam such that

an effect is generated in the storage area when the focused beam impinges upon the storage area;

a magnitude of the effect depends upon the state of the storage area; and

information in the storage area is read by measuring the magnitude of the effect.

20. The electronic device of claim 19, further comprising:

a mover to position said memory medium with respect to said plurality of tip emitters; and

a reader circuit integrated in said mover.

21. An computer device including a plurality of the electronic devices of claim 1, the electronic device including a processor for controlling said electronic devices.

22. A mass storage device including a plurality of the electronic devices of claim 1, the mass storage device including a memory medium disposed at a focal point of said emissions.

23. The electronic device of claim 1, wherein the tip emitter is one of a plurality of tip emitters formed in a respective plurality of wells, each of said plurality of emitters having a separate extractor disposed about its well, the plurality of emitters having their combined emissions focused by said wide lens and apertured by said aperture.

24. An electronic device comprising:

a substrate;

a ~0.3 – ~0.5μm diameter and ~0.4 - ~0.6μm deep well defined in said substrate;

a tip emitter formed in said well;

an extractor disposed about said well to extract emissions from said tip emitter;

a wide lens disposed a length of ~2 - ~10μm from said extractor for focusing said emissions through an at least a ~2 - ~10μm diameter opening defined in said wide lens, wherein a ratio of said diameter to said length is greater than 1:1; and

an aperture disposed between said extractor and said wide lens.

25. The electronic device of claim 24, wherein said aperture is disposed a length of ~0.7 - ~5μm from said wide lens.

26. The electronic device of claim 25, wherein said aperture has a ~0.8 – ~2μm diameter.

27. The electronic device of claim 24, wherein said aperture has a ~0.8 – ~2μm diameter.

28. The electronic device according to claim 24, further comprising extractor level focusing means for focusing said emissions toward said aperture.

29. The electronic device of claim 28, wherein said extractor level focusing means comprises said extractor being formed as a circular electrode about said well.

30. The electronic device of claim 28, wherein said extractor level focusing means further comprises a negatively biased electrode spaced apart from said circular electrode.

31. The electronic device of claim 24, wherein said wide lens has a depth in the range of ~0.1 - 2μm(10μm).

32. The electronic device of claim 24, further comprising means for stabilizing said emissions.

33. The electronic device of claim 32, wherein said means for stabilizing said emissions limits voltage variation of said tip emitter.

34. The electronic device of claim 33, wherein said means for stabilizing said emissions further limits voltage variation of said aperture.

35. The electronic device of claim 34, wherein said wherein said means for stabilizing said emissions further limits voltage variation of said wide lens.

36. The electronic device of claim 32, wherein said means for stabilizing said emissions limits voltage variation of said extractor.

37. The electronic device of claim 32, wherein said means for stabilizing said emissions limits voltage variation of said tip emitter to be less than or equal to ~±5V.

38. The electronic device of claim 32, wherein said means for stabilizing said emissions limits voltage variation of said tip emitter to be less than or equal to ~±2V.

39. The electronic device of claim 32, wherein said means for stabilizing said emissions limits voltage variation of said wide lens to be less than or equal to ~±5V.

40. The electronic device of claim 32, wherein said means for stabilizing said emissions limits voltage variation of said extractor to be less than or equal to ~±2V.

41. The electronic device of claim 24, wherein the tip emitter is one of a plurality of tip emitters formed in a respective plurality of wells, each of said plurality of emitters having a separate extractor disposed about its well, the plurality of emitters having their combined emissions focused by said wide lens and apertured by said aperture.

42. A method for forming an electronic device, the method comprising steps of:

forming a tip emitter in a well defined in a substrate;

forming an extractor about said well; and

separately from said steps of said forming a tip emitter and forming said extractor, forming an aperture to limit divergence of emissions from said tip emitter, and forming a wide and distant lens arranged with respect to said well to focus emissions passing through said aperture.

43. The method of claim 42, wherein:

said step of forming said aperture comprises forming first dielectric on said extractor and then forming said aperture upon said first dielectric; and

said step of forming said wide and distant lens comprises forming second dielectric on said aperture and then forming said wide and distant lens upon said second dielectric.

44. The method of claim 43, further comprising a step of arranging a target medium with respect to said lens.

45. A method for reducing spot size of a focused emission, culminating in an optimized method of formation according to claim 40, the method for reducing spot size comprising optimizing a diameter and distance of said wide and distant lens and said aperture to reduce spot size.

46. An electronic device, comprising:

a substrate:

a well defined in said substrate;

a tip emitter formed in said well;

an extractor disposed about said well to extract emissions from said tip emitter;

means for limiting divergence of said emissions; and

means for focusing said emissions into spot size of less than ~35nm.

47. The electronic device of claim 46, wherein said means for focusing and said means for limiting divergence are formed independently from said well, said tip emitter and said extractor.

48. The electronic device of claim 47, wherein said means for focusing comprises an electrostatic lens that has a diameter greater than a diameter of said well.

49. The electronic device of claim 48, wherein said means for limiting divergence comprises an aperture disposed between said extractor and said electrostatic lens, said aperture further being spaced apart from said electrostatic lens.

50. The electronic device of claim 46, further comprising means for collimating said emissions toward said means for focusing.

51. The electronic device of claim 46, wherein the tip emitter is one of a plurality of tip emitters formed in a respective plurality of wells, each of said plurality of emitters having a separate extractor disposed about its well, the plurality of emitters having divergence of their combined emissions limited by said means for limiting divergence and focused by said means for focusing.